

REMARKS

Claims 1-29 are pending in the present application. Claims 21 and 22 have been amended herewith. Reconsideration of the claims is respectfully requested.

I. 35 U.S.C. § 101

The Examiner rejected Claims 21-29 under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. This rejection is respectfully traversed.

In rejecting Claims 21-29, the Examiner states that such claims are directed to non-statutory subject matter as not being limited to tangible embodiments. In response thereto, Applicants have amended Claim 21 to specifically recite a tangible medium.

Therefore, the rejection of Claims 21-29 under 35 U.S.C. § 101 has been overcome.

II. 35 U.S.C. § 112, First Paragraph

The Examiner objected to the specification under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention in Claims 21-29. Additionally, the Examiner rejected Claims 21-29 under the same reasons. This rejection is respectfully traversed.

The Examiner states that the words 'instructions' and 'sub-instructions' are not mentioned in the specification. While Applicants have amended the claims to eliminate the objectionable word 'sub-instructions', it is urged that 'instructions' is defined in the Specification at page 14 (middle paragraph) and page 20 (first paragraph), and thus use of such term in the claims is shown to be proper.

Therefore, the objection of the specification and rejection of Claims 21-29 under 35 U.S.C. § 112, first paragraph has been overcome.

III. 35 U.S.C. § 103, Obviousness

The Examiner rejected Claims 1-3, 6-14 and 16-20 under 35 U.S.C. § 103 as being unpatentable over McMichael et al (US Pub 2003/0023826) and in view of Gao (US Pub 2003/0163578). This rejection is respectfully traversed.

With respect to Claim 1, it is urged that none of the cited references teach or suggest the claimed feature of "setting a new device type for the logical volume, *wherein the new device type is added to a metadata within the logical volume manager*" (emphasis added by Applicants). As can be seen, the new device type (for the logical volume) is added to a metadata within the logical volume manager, thereby advantageously providing a mechanism for allowing the device type specified during creation of the logical volume to signal to an application that the application can perform a particular behavior (Specification page 16, bottom paragraph – page 17, middle paragraph; page 18, last paragraph – page 19, first paragraph). In rejecting this aspect of Claim 1, the Examiner cites McMichael's teaching at page 6, paragraphs 60-62 as teaching this claimed feature. Applicants urge that while these cited passages make mention of enumerating a volume device object for a logical volume, *these volume device objects are stored by the object manager 407 in the device hierarchy by their device names* (page 6, paragraph 0060, next to last sentence). This object manager 407 can also be seen at McMichael's Figure 4, element 407 (bottom of the figure). This object manager is separate and distinct from McMichael's volume managers (volume manager1 411 and volume manager2 412), and thus this teaching by McMichael of storing of volume device objects *by the object manager* does not teach or otherwise suggest adding the new device type to a *metadata within the logical volume manager*, as the object manager and volume manager are separate and distinct from one another per the teachings of McMichael.

Nor do the teachings of the cited Gao reference overcome such teaching/suggestion deficiency. Gao does not describe *any type of logical volume manager*, and thus it necessarily follows that it cannot teach or otherwise suggest adding a new device type to a metadata *within a (missing) logical volume manager*.

Further with respect to Claim 1, it is urged that none of the cited references teach or suggest the claimed feature of "adding a new device with the new device type to a kernel space". As can be seen, a new device with the new device type (which was set for the logical volume, in the "setting a new device type for the logical volume" step) is added to a kernel space. In rejecting this aspect of Claim 1, the Examiner cites McMichael's teaching at page 5, paragraph 55 as teaching this claimed feature. Applicants urge that this cited McMichael passage states:

[0055] In this section of the detailed description, a particular implementation of the invention is described that executes as part of the Microsoft Windows NT 5.0 operating system kernel. In the implementation illustrated in FIG. 4, the partition manager 401 and four other kernel modules work together to provide a user with access to data stored on a physical storage device 413 (shown as a fixed hard disk): a plug and play manager 405, an object manager 407, a mount manager 409, and two volume managers 411, 412. As will be readily apparent to one skilled in the art, the allocation of functions among the modules can be modified without exceeding the scope of the invention.

As can be seen, this passage merely describes that the invention executes as part of the operating system kernel, where the partition manager and four other kernel modules work together to provide a user with access to data stored on a physical storage device. There is no specific teaching or suggestion, in this cited passage, as to any type of new device being added with the new device type (which was set for the logical volume, in the "setting a new device type for the logical volume" step), either to the kernel space (as claimed) or otherwise. As this is the sole passage that is cited as teaching the claimed 'adding' step, it is urged that the Examiner has failed to properly establish a prima facie showing of obviousness with respect to Claim 1¹.

Accordingly, the burden has not shifted to Appellants to rebut such improper obviousness assertion². In addition, as a proper prima facie showing of obviousness has not been established, Claim 1 has been erroneously rejected³.

¹ In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). To establish prima facie obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. MPEP 2143.03. *See also, In re Royka*, 490 F.2d 580 (C.C.P.A. 1974).

² Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. *In re Oetiker, supra*.

³ If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Still further with respect to Claim 1, it is urged that the cited McMichael and Gao references are non-analogous art – one (McMichael) being directed to a storage disk partitioning scheme and the other (Gao) being directed to a snoop utility used for monitoring communication networks. The combination of elements from non analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Thus, Claim 1 is further shown to have been erroneously rejected under 35 U.S.C. § 103 using non-analogous art.

Applicants initially traverse the rejection of Claims 2, 3 and 6-10 for reasons given above with respect to Claim 1 (of which Claims 2, 3 and 6-10 depend upon).

Further with respect to Claim 2, it is urged that none of the cited references teach or suggest the claimed feature of “supplying the logical volume manager with a new device type for the logical volume”. As can be seen, the logical volume manager is supplied with a new device type for the logical volume. In rejecting Claim 2, the Examiner cites Gao's pages 2-3 as describing a snoop utility that can issue an ioctl call to obtain in detail more configuration information corresponding to the device driver's media type (e.g. Ethernet). Applicants urge that such determination with respect to a data communication network's media type is not in any way related to any type of logical volume or logical volume manager, and thus this cited passage does not teach or otherwise suggest the specific claimed feature of “supplying the *logical volume manager* with a new device type for the *logical volume*” (emphasis added by Applicants). Thus, Claim 2 is further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Further with respect to Claim 3, it is urged that none of the cited references teach or suggest the claimed feature of “using the new device type to indicate to the application that the application may perform a particular behavior defined by the new device type”. In rejecting Claim 3, the Examiner cites Gao's teaching at page 3, paragraph 19 as teaching that if the media type is Ethernet, the snoop utility operates accordingly. Applicants urge that Claim 3 goes well beyond such assertion, and is specifically directed to a *particular use of the new device type that was set for the logical volume*. As the cited Gao reference is not directed in any way to any type of logical volume, it necessarily follows that the cited Gao reference does not teach any new device type for such (missing) logical volume, and because Gao does not teach/suggest any such

new device type, it necessarily follows that there is no teaching of any particular usage of such (missing) new device type – and in particular there is no teaching/suggestion of using the (missing) new device type to indicate to the application that the application may perform a particular behavior *defined by the new device type*. Thus, Claim 3 is further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Further with respect to Claim 6, it is urged that none of the cited references teach or suggest the claimed feature of “wherein the particular behavior defined by the new device type includes allowing the application to enable a new feature within the application”. In rejecting Claim 6, the Examiner cites Gao’s teaching at page 4, example 1 with respect to PPP_IPV6. Applicants urge that this cited passage describes a data structure used to describe a communication protocol to a data link user (page 4, paragraph 0043), and has nothing to do with a new device type for a logical volume. Therefore, this cited passage does not teach/suggest “wherein the particular behavior *defined by the new device type* includes allowing the application to enable a new feature within the application” (emphasis added by Applicants). Thus, Claim 6 is further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Further with respect to Claim 7, it is urged that none of the cited references teach or suggest the claimed feature of “wherein the particular behavior defined by the new device type includes allowing the application to reduce a currently supported feature set within the application”. In rejecting Claim 7, the Examiner cites Gao’s teaching at page 4, example 1 with respect to PPP_IP. Applicants urge that this cited passage describes a data structure used to describe a communication protocol to a data link user (page 4, paragraph 0043), and has nothing to do with a new device type for a logical volume. Therefore, this cited passage does not teach/suggest “wherein the particular behavior *defined by the new device type* includes allowing the application to reduce a currently supported feature set within the application” (emphasis added by Applicants). Thus, Claim 7 is further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Further with respect to Claim 8, it is urged that none of the cited references teach or suggest the claimed feature of “wherein the particular behavior defined by the new device type includes allowing the application to prevent older versions of the application from using the

logical volume". In rejecting Claim 8, the Examiner states that such claim is rejected 'based on the same rationale as in the rejection of claims 6-7', in that a user can select to apply new version of Ethernet protocol over an old version. Applicants urge that such assertion does not establish any teaching or suggestion with respect to (1) the particular use of the new device type (for the logical volume), or (2) the prevention of older versions of an application from using a logical volume manager. Claim 8 expressly recites "wherein the particular behavior *defined by the new device type* includes allowing the application to prevent older versions of the application from *using the logical volume*" (emphasis added by Applicants). Thus, Claim 8 is further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Further with respect to Claim 9, it is urged that none of the cited references teach or suggest the claimed feature of "wherein the particular behavior defined by the new device type includes allowing the application to test the application's expected behavior on a different volume manager". In rejecting Claim 9, the Examiner states that such claim is rejected 'based on the same rationale as in the rejection of claims 4-5'. Applicants urge that since Claims 4-5 were rejected in a different section using *three* references (McMichael/Gao/Irwin), and Claim 9 is being rejected only using *two* references (McMichael/Gao), the reasoning given in rejecting Claim 9 using only *two* references (McMichael/Gao) is fundamentally in error in relying on reasoning given in rejecting other claims (Claims 4-5) that were rejected using *three* references. Thus, Claim 9 is further shown to have been erroneously rejected.

With respect to Claim 11, it is urged that none of the cited references teach or suggest the claimed feature of "wherein the new device type set for the logical volume is used to indicate to the application that the application may perform *a particular behavior defined by the new device type*" (emphasis added by Applicants). In rejecting Claim 11, the Examiner states such claim is rejected 'based on the same rationale as in the rejection of claim 1'. Applicants urge that since Claim 1 does not recite any use of the new device type – including using the new device type to indicate something to an application – the Examiner has failed to establish any teaching or suggestion of the claimed feature of "wherein the new device type set for the logical volume *is used to indicate* to the application that the application may perform *a particular behavior defined by the new device type*" (emphasis added). Thus, Claim 11 is shown to have been erroneously rejected as there are claimed features not taught or suggested, or even alleged to be taught or

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suggested, by the cited references.

Applicants traverse the rejection of Claims 12-14 and 16-20 for similar reasons to those given above with respect to Claim 1.

Applicants further traverse the rejection of Claim 13 for similar reasons to the further reasons given above with respect to Claim 2.

Applicants further traverse the rejection of Claim 14 for similar reasons to the further reasons given above with respect to Claim 3.

Applicants further traverse the rejection of Claim 17 for similar reasons to the further reasons given above with respect to Claim 6.

Applicants further traverse the rejection of Claim 18 for similar reasons to the further reasons given above with respect to Claim 7.

Applicants further traverse the rejection of Claim 19 for similar reasons to the further reasons given above with respect to Claim 8.

Applicants further traverse the rejection of Claim 20 for similar reasons to the further reasons given above with respect to Claim 9.

Therefore, the rejection of Claims 1-3, 6-14 and 16-20 under 35 U.S.C. § 103 has been overcome.

IV. 35 U.S.C. § 103, Obviousness

The Examiner rejected Claims 4-5 and 15 under 35 U.S.C. § 103 as being unpatentable over McMichael et al (US Pub 2003/0023826) and Gao (US Pub 2003/0163578) as applied to Claims 3 and 14 respectively, and further in view of Irwin, Jr et al (US 5,566,331). This rejection is respectfully traversed.

With respect to Claim 4, Applicants initially traverse such rejection for similar reasons to those given above with respect to Claim 3 (of which Claim 4 depends upon).

Further with respect to Claim 4, Applicants urge that none of the cited references teach or suggest the claimed feature of "wherein the particular behavior *defined by the new device type* includes allowing the application to determine a location to begin writing data in a database" (emphasis added). In rejecting Claim 4, the Examiner states that such claimed feature is taught by Irwin at col. 17, lines 1-7. Applicants urge that this passage describes personality modules that are used to (i) translate the device driver's entry point block I/O functions into specific

storage device I/O commands, and (ii) interpret status information received from the storage device. There is no mention of (i) any type of application, (ii) a device type for a logical volume that defines a particular behavior, or (iii) allowing an application to determine a location to begin writing data in a database. Thus, the Examiner has failed to properly establish a prima facie showing of obviousness with respect to Claim 4. Accordingly, the burden has not shifted to Appellants to rebut such improper obviousness assertion. In addition, as a proper prima facie showing of obviousness has not been established, Claim 4 has been erroneously rejected.

With respect to Claim 5, Applicants initially traverse such rejection for similar reasons to those given above with respect to Claim 4 (of which Claim 5 depends upon).

Further with respect to Claim 5, Applicants urge that none of the cited references teach or suggest the claimed feature of "wherein the location to begin writing data in the database includes block zero of the logical volume control block". In rejecting Claim 5, the Examiner states that McMichael's teaches this claimed feature at page 4, paragraphs 37 and 42; page 5, paragraphs 47-48; and page 1, paragraphs 5-10. Applicants have reviewed each of these passages extensively, and can find no mention of any type of logical volume control block, and thus there is no teaching/suggestion in these cited passages of "wherein the location to begin writing data in the database includes block zero of the *logical volume control block*". Claim 5 is thus further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

Still further with respect to Claim 5, such claim depends upon Claim 4 and is a further refinement to the claimed location determination. As this location determination is alleged to be taught by the cited Irwin reference (per the Claim 4 rejection), it is not possible for the cited McMichael reference to teach a further refinement to the location determination alleged to be taught by Irwin as they are different, and unrelated, references. Also, as McMichael does not teach any type of location determination being allowed by an application, it necessarily follows that McMichael's does not teach the specifics of such location determination as expressly recited in Claim 5. Claim 5 is thus further shown to have been erroneously rejected as there are additional claimed features not taught or suggested by the cited references.

With respect to Claim 15, Applicants initially traverse such rejection for similar reasons to those given above with respect to Claim 14 (of which Claim 15 depends upon).

Further with respect to Claim 15, Applicants traverse such rejection for similar reasons to those further reasons given above with respect to Claim 4.

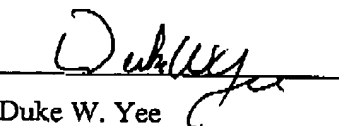
Therefore, the rejection of Claims 4-5 and 15 under 35 U.S.C. § 103 has been overcome.

V. Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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